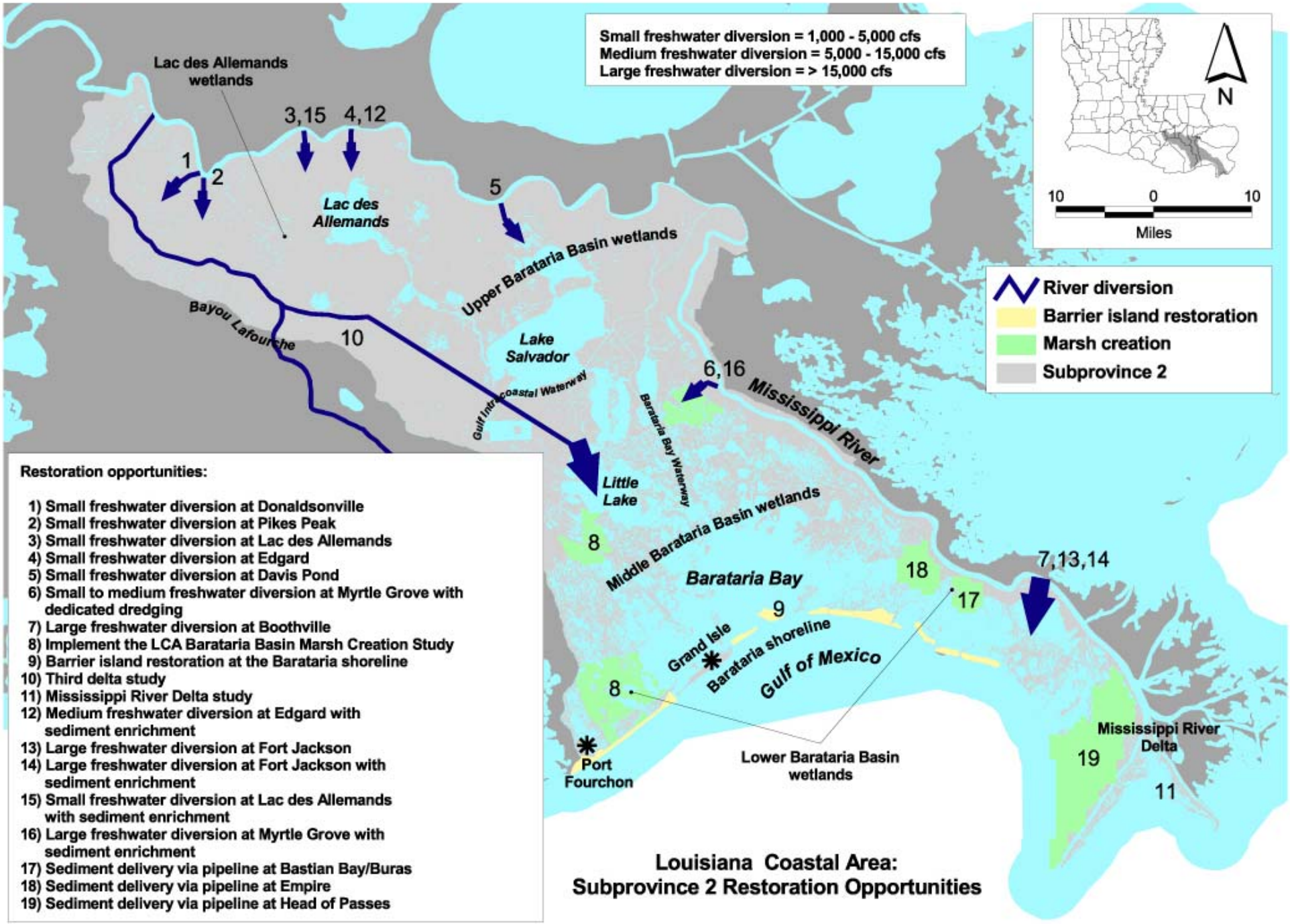
SUBPROVINCE 2

Restoration Opportunity	Description
Small freshwater diversion at Donaldsonville	This measure provides for a small diversion at 50 percent duration river stage diverted into upper Bayou Verret. Annual diversion corresponds to annual river stage hydrograph, controlled structure.
Small freshwater diversion at Pikes Peak	This measure provides for a small diversion at 50 percent duration river stage diverted into Bayou Chevreuil. Annual diversion corresponds to annual river stage hydrograph, controlled structure.
Small freshwater diversion at Lac des Allemands	The study is to greatly increase the deposition of Mississippi River sediments on the shallow continental shelf, while insuring navigation interests. Sediment, nutrients and fresh water would be re-directed to restore the quality and sustainability of the Mississippi River Delta Plain, its coastal wetland complex, and the Gulf of Mexico.
Small freshwater diversion at Edgard	This measure provides for a small diversion at 50 percent duration river stage diverted into Lac des Allemands through Bayou Fortier. Annual diversion corresponds to annual river stage hydrograph, controlled structure.
Small freshwater diversion at Davis Pond	Since its construction in 2002, the Davis Pond structure has been operated as a salinity control measure, with freshwater introductions ranging between 1,000 cfs to 10,000 cfs. The primary purpose of the Davis Pond project has been to maintain salinity gradients in the central portion of the Barataria Basin. The proposed LCA restoration measure would seek a re-authorization of the Davis Pond project purpose to include wetland creation and restoration, thereby altering the project's operational plan and increasing the freshwater introduction rate to 5,000 cfs on average. Prior to the implementation of the project, the area experienced wetland deterioration due to subsidence, a lack of freshwater circulation, saltwater intrusion, and a lack of nourishment through the introduction of new sediments and nutrients. Today, wetland degradation continues due to subsidence and a paucity of sediment and nutrients to nourish the wetland communities.

Restoration Opportunity	Description
Small to medium freshwater diversion at Myrtle Grove with dedicated dredging	This measure provides for a small diversion at 50 percent duration river stage diverted into the Bayou Dupont area. Annual diversion corresponds to annual river stage hydrograph, controlled structure. This measure provides for sediment delivery via sediment mined from Mississippi River. Required dredging volume corresponding to a net yield of approximately 29 wetland acres per year.
Large freshwater diversion at Boothville	This measure provides for a large diversion at 50 percent duration river stage into the Yellow Cotton / Hospital Bay area. Annual diversion corresponds to annual river stage hydrograph, uncontrolled diversion.
Implement the LCA Barataria Basin Marsh Creation Study	Sediment mined from Mississippi River placed in the sites along Bayou Lafourche, required dredging volume corresponding to a net yield of approximately 220 wetland acres per year.
Barrier island restoration at the Barataria shoreline	Mining of offshore sediment sources to reestablish barrier islands. Based on designs developed in the LCA Barrier Island Restoration study. Option assumes a 3,000-foot island footprint.
Third Delta study	**(**Preliminary designs, implementation costs, and benefits that were developed for this analysis would require additional detailed study to verify accuracy prior to implementation**).** This measure provides for a 120,000 cfs diversion at Bayou Lafourche. Approximately 240,000 cfs at maximum river stage diverted into a newly constructed conveyance channel (parallel to Bayou Lafourche), diversion corresponds to annual river stage hydrograph, diverted flow would be divided equally between the Barataria and Terrebonne hydrologic basins, controlled structure. Sediment enrichment assumes use of 30-inch dredge at capacity for three months. Three month yield = 6,293, 000 yd^3 at an average depth of 5 feet with 50 percent compaction and 80 percent retention. This corresponds to approximately 175-ppm additional sediment in the diversion at 200,000 cfs.

Restoration Opportunity	Description
Mississippi River Delta study	The study is to greatly increase the deposition of Mississippi River sediments on the shallow continental shelf, while insuring navigation interests. Sediment, nutrients and fresh water would be re-directed to restore the quality and sustainability of the Mississippi River Delta Plain, its coastal wetland complex, and the Gulf of Mexico.
Medium freshwater diversion at Edgard with sediment enrichment	This measure provides for a medium diversion at 50 percent duration river stage diverted into Lac des Allemands through Bayou Fortier, annual diversion corresponds to annual river stage hydrograph, controlled structure. Sediment enrichment assumes use of 12-inch dredge for three months. Discharge of effluent up stream of the diversion intake would allow the capture of silts and very fine sands only. This would result in capture of approximately 30 percent of the total dredge effluent (6,989 yd^3 / day).
Large freshwater diversion at Fort Jackson	This measure provides for a large diversion at 50 percent duration river stage into the Yellow Cotton / Hospital Bay area. Annual diversion corresponds to annual river stage hydrograph, uncontrolled diversion.
Large freshwater diversion at Fort Jackson with sediment enrichment	This measure provides for a large diversion at 50 percent duration river stage into the Yellow Cotton / Hospital Bay area. Annual diversion corresponds to annual river stage hydrograph, uncontrolled diversion. Sediment enrichment assumes use of 20-inch dredge at capacity for three months. Three month yield = 1,468, 000 yd^3 at an average depth of 7.5 feet with 50 percent compaction and 80 percent retention. This corresponds to approximately 136-ppm additional sediment in the diversion at 60,000 cfs.
Small freshwater diversion at Lac des Allemands with sediment enrichment	This measure provides for a small diversion at 50 percent duration river stage diverted into Lac des Allemands. Annual diversion corresponds to annual river stage hydrograph, controlled structure. Sediment enrichment assumes use of 12-inch dredge for three months. Discharge of effluent up stream of the diversion intake would allow the capture of silts and very fine sands only. This would result in capture of approximately 30 percent of the total dredge effluent (6,989 yd^3 / day).

Restoration Opportunity	Description
Large freshwater diversion at Myrtle Grove with sediment enrichment	This measure provides for a large diversion at 50 percent duration river stage diverted into the Bayou Dupont area. Annual diversion corresponds to annual river stage hydrograph, controlled structure. Sediment enrichment assumes use of 30-inch dredge at capacity for three months. Three month yield = 6,293, 000 yd^3 at an average depth of 5 feet with 50 percent compaction and 80 percent retention. This corresponds to approximately 233-ppm additional sediment in the diversion at 150,000 cfs.
Sediment delivery via pipeline at Bastian Bay/Buras	This measure provides for sediment delivery via sediment mined from Mississippi River placed in Bastian Bay. Required dredging volume corresponding to a net yield of approximately 48 wetland acres per year.
Sediment Delivery via pipeline at Empire	This measure provides for sediment delivery via programmatic sediment mining from the Mississippi River utilizing a Sediment Trap above the Head of Passes. Estimated dredging volume nine million cubic yards per year corresponding to a net yield of approximately 1,017 wetland acres per year.
Sediment delivery via pipeline at Head of Passes	This measure provides for sediment delivery via programmatic sediment mining from the Mississippi River utilizing a Sediment Trap above the Head of Passes. Estimated dredging volume nine million cubic yards per year corresponding to a net yield of approximately 1,017 wetland acres per year.


Small freshwater diversion = 1,000 - 5,000 cfs
Medium freshwater diversion = 5,000 - 15,000 cfs
Large freshwater diversion = > 15,000 cfs
N
10 0 10
Miles
River diversion
Barrier island restoration
Marsh creation
Subprovince 2
Lac des Allemands wetlands
3,15
4,12
1
2
Lac des Allemands
5
Upper Barataria Basin wetlands
Bayou Lafourche
10
Lake Salvador
Gulf Intracoastal Waterway
6,16
Mississippi River
Barataria Bay Waterway
Little Lake
8
Middle Barataria Basin wetlands
Barataria Bay
18
7,13,14
17
9
Grand Isle
Barataria shoreline
Gulf of Mexico
8
Port Fourchon
Lower Barataria Basin wetlands
Mississippi River Delta
19
11
Restoration opportunities:
1) Small freshwater diversion at Donaldsonville
2) Small freshwater diversion at Pikes Peak
3) Small freshwater diversion at Lac des Allemands
4) Small freshwater diversion at Edgard
5) Small freshwater diversion at Davis Pond
6) Small to medium freshwater diversion at Myrtle Grove with dedicated dredging
7) Large freshwater diversion at Boothville
8) Implement the LCA Barataria Basin Marsh Creation Study
9) Barrier island restoration at the Barataria shoreline
10) Third delta study
11) Mississippi River Delta study
12) Medium freshwater diversion at Edgard with sediment enrichment
13) Large freshwater diversion at Fort Jackson
14) Large freshwater diversion at Fort Jackson with sediment enrichment
15) Small freshwater diversion at Lac des Allemands with sediment enrichment
16) Large freshwater diversion at Myrtle Grove with sediment enrichment
17) Sediment delivery via pipeline at Bastian Bay/Buras
18) Sediment delivery via pipeline at Empire
19) Sediment delivery via pipeline at Head of Passes
Louisiana Coastal Area:
Subprovince 2 Restoration Opportunities